

**ABSTRACT OF THE DISCLOSURE**

The disclosure describes the purification and isolation of a novel human protein Z-dependent protease inhibitor (ZPI) from plasma characterized as having a molecular weight of about 72 kDa, being a single chain protein with an N-terminal amino acid sequence of LAPSPQSPETPA, and which produces a rapid inhibition of factor Xa in the presence of human protein Z (PZ), calcium ions and cephalin. The disclosure further describes the isolation and cloning of the ZPI cDNA from a human cDNA library. The ZPI cDNA is 2.44 kb in length and has an open reading frame that encodes the 423 residue mature ZPI protein and a 21 residue signal peptide. PZ, ZPI and the combination of PZ and ZPI are used to inhibit blood coagulation.

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